Space Weather Forecast

Issued on Tuesday 11 March 2025 at 13:06 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate-class flares. G1/Minor Storms likely by Days 3-4 (13-14 Mar), chance G2/Moderate Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with only isolated Common-class flares observed. There are currently eight regions on the Earth-facing disc. The main region of interest is in the northeast, which has seen gradual growth in its trailer and intermediate regions, and continues with some minor magnetic complexity. A region in the southwest has shown a decrease in size, particularly of the northern spot. There are several new regions in the east, one of which has grown recently. Other regions are relatively small and simple at the present time.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: Solar winds showed a declining coronal hole fast wind. Wind speeds were initially strong near 600km/s, declining to slightly elevated levels near 450km/s. Interplanetary Magnetic Field was weak with the north-south component also weakly variable. Geomagnetic activity was Quiet to Unsettled (Kp1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) was at background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Low activity is most likely, but with a slightly increasing chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are no CMEs likely to impact Earth, however a weak glance cannot be completely ruled out on Day 1 (11 Mar). Ongoing fast winds are expected to continue to ease through Days 1-2 (11-12 Mar), likely reaching background levels. The next fast wind enhancement is most likely to occur during Day 3 (13 Mar), with elevated to strong wind speeds expected.

Geomagnetic activity is expected to be Quiet to Unsettled through Days 1 and 2, with a decreasing chance of isolated Active intervals. On Days 3 and 4 a spell of Active to G1/Minor Storms are likely, with the potential for isolated G2/Moderate storm intervals.

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Energetic Particles / Solar Radiation: The count rate of energetic particles is most likely to remain at background levels.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	30	70	70
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	40	45	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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